

REMARKS

Review and reconsideration of the application in view of Applicants' amendments and remarks are respectfully requested. No claims are amended.

Consideration of the amendment and remarks after final is proper under 37 C.F.R. §1.116 because 1) no claims are amended; 2) the remarks clarify issues previously presented; and 3) the remarks place the application in condition for allowance. Entry and consideration of the remarks is thus respectfully solicited.

Applicants thank Examiner Shosho for indicating during a telephone call of April 6, 2004, with Applicants' representative that she would consider this response and the accompanying Declaration of Dr. Huijuan Chen. Any issues discussed are reflected in this Request for Consideration.

Claims 1, 10, 12, 14, and 17-18 have been rejected under 35 USC §103(a) as being unpatentable over Sacripante et al. (US 6,025,412) in view of Figuly (US 5,136,014).

Claim 13 has been rejected under 35 USC §103(a) as being unpatentable over Sacripante et al. in view of Figuly as applied to Claims 1, 10, 12, 14 and 17-18 above, and further in view of *Polymer Science Dictionary*.

Claim 15 has been rejected under 35 USC §103(a) as being unpatentable over Sacripante et al. in view of Figuly as applied to Claims 1, 10, 12, 14 and 17-18 above, and further in view of Evans et al. (US 6,468,338).

Claim 16 has been rejected under 35 USC §103(a) as being unpatentable over Sacripante et al. in view of Figuly as applied to Claims 1, 10, 12, 14 and 17-18 above, and further in view of either Chen et al. (US 6,431,700) or Evans et al. (US 6,001,161).

Applicants respectfully traverse each and every one of the above rejections for at least the following reasons.

The Office Action relies on the primary combination of Sacripante in view of Figuly in all of the stated rejections. This combination of references will be addressed first, and individual tertiary references addressed afterwards.

According to the Office Action, Sacripante et al. discloses an ink jet ink comprising water, a humectant, and a polyester having a dye attached within the base chain or to the base chain as a side chain component. As admitted in the Office Action, Sacripante et al. does not disclose or suggest a hyperbranched polymeric dye. Figuly is cited for disclosure of a hyperbranched polyester. Neither Sacripante et al. nor Figuly disclose or suggest the subject matter of the claimed invention.

Sacripante et al. is directed to an ink jet ink including particles of a dye-polymer resin dispersed in a liquid vehicle. The dye-polymer resin particles have a number average particle size of from about 2 nm to about 500 nm, and include a dye chemically attached to a polymer resin. Figuly is directed to hyperbranched functional polyesters that can be used as rheology modifiers. One of ordinary skill in the art would not look to Sacripante et al. to form the claimed invention because Sacripante et al. is directed to formation of particles of a dye-polymer resin. Combining Figuly with Sacripante et al. would result in the formation of particles of dye-polymer resin, wherein the resin is a hyperbranched polymer. As known in the art, use of particles, for example pigments, in an ink jet ink is undesirable because such particles can settle out of the liquid vehicle over time, and can clog printhead nozzles (*see* page 2, lines 27-29, of Applicants specification).

The hyperbranched polymer of the claimed invention does not form particles because it is water-soluble. In water, the hyperbranched polymer maintains a macromolecular form rather than aggregating. As shown in the attached Declaration of Dr. Huijuan Chen, a co-inventor, size exclusion chromatography clearly demonstrates no particles are formed by the hyperbranched polymer in water, and the size of the hyperbranched polymer macromolecules was not measurable with a Microtrac Ultra Fine Particle Analyzer (*see* page 3 of Declaration).

In contrast, Sacripante specifically states the dye-polymer resin forms particles having a number average particle size of from about 2 nm to about 500 nm. Combining Sacripante with Figuly must result in particles of dye-polymer resin, or the purpose of Sacripante would not be met. Because Sacripante, alone or in combination with Figuly, requires particles, it does not disclose or suggest the claimed invention.

Further, the combination of Sacripante et al. with Figuly, producing particles of dye-polymer resin, would not be desirable in the claimed invention because particles do not allow reliable firing of an ink jet ink composition containing the dye-polymer resin particles in a printhead. Particles can cause clogging and uneven dispersion of the ink jet ink composition. See, for example, the description of pigment particles in Applicants' specification at page 2, lines 24-29. Thus, combining the teachings of Sacripante et al. with Figuly would result in an ink jet ink including particles which would impair the firability of the ink. The attached Declaration of Dr. Chen demonstrates the poor firability of an ink jet ink containing dye-polymer resins wherein the resins are hyperbranched polymers as suggested by the combination of Sacripante et al. with Figuly, as compared to the friability of an ink jet ink including the hyperbranched polymer of the claimed invention (*see* pages 3-4 of Declaration).

As discussed herein, neither Sacripante et al. nor Figuly, alone or in combination, disclose an ink jet ink composition comprising a hyperbranched dye, wherein the composition does not include particles and has improved firability. The disclosures of the Polymer Science Dictionary, Evans et al. '338, Chen et al., and Evans et al. '161 do not overcome the deficiencies of Sacripante et al. or Figuly, alone or in any combination. For at least the above reasons, reconsideration and withdrawal of the rejection are respectfully requested.

Claim 11 has been objected to as being dependent upon a rejected base claim, but otherwise is indicated to include allowable subject matter. Applicants submit all of claims 1 and 10-18 are in condition for allowance for at least the reasons set forth herein. Prompt and favorable action is earnestly solicited.

Should the Examiner require anything further, or have any questions, she is invited to contact Applicants' undersigned representative.

Respectfully submitted,



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